D.R. Barnhisel, Ph.D.
161 Fish Road
Temple, NH, 03084
Phone/Fax: 603-878-3671

November 18, 2005

Chair of the Waste Management Council c/o Appeals Clerk
Dept. Environmental Services Legal Unit
29 Hazen Drive, P.O. Box 95
Concord 03302-0095

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05-20 WMC

Dear Chairman:

Under RSA 21-O:14 and 21-O:9-V and in accordance with RSA 541-A and N.H. Admin. Rules, Env-WMC 200, this letter is to appeal the Groundwater Management Permit No. 199103027-T-001 issued to the Town of Temple on November 7, 2005 to monitor groundwater quality at the Temple Landfill, Map 5-38.

Specific grievances and concerns include:

1) Standard Management Permit Condition #7 to sample three (3) existing on-site monitoring wells.
    a. The installation and siting of the existing monitoring wells did not meet state standards per a N.H. Department of Environmental Service (DES) letter dated November 14, 2001.
    b. The existing monitoring wells did not meet federal standards per a U.S. Environmental Protection Agency (EPA) letter dated November 1, 2001 (copy attached).
    c. The existing wells were installed to a maximum depth of only 16 feet and therefore cannot monitor "groundwater."
    d. A DES letter dated 06-24-04, states that two of the four monitoring wells are "suspect" and should be decommissioned in accordance with Env-Wm 1403.27.
2) Special Condition #12 to install a new monitoring well.
    a. The depth of the proposed well is not specified so that it may sample groundwater.
    b. Any existing well being replaced by the new monitoring well is not required to be decommissioned in accordance with Env-Wm 1403.27.

If you require copies of the DES letters and documents referenced above, I will be happy to provide them. I thank the Council for its attention and look forward to a decision regarding these issues.

Sincerely,

Dr. Rae Barnhisel

CC: Town of Temple

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

November 1, 2001

OFFICE OF THE
REGIONAL ADMINISTRATOR

Dr. Rae Barnhisel
161 Fish Road
Temple, NH 03084

Dear Dr. Barnhisel:

Thank you for your October 3, 2001 letter to Regional Administrator Robert W. Varney and your October 15, 2001 letter to Douglas Health of my staff. Your letters describe public health and water quality concerns from a closed solid-waste landfill in Temple, New Hampshire. We also received from you a report entitled: "Summary of Hydrogeologic Investigation at the Temple Landfill in Temple, New Hampshire," prepared by Stratex LLC on May 17, 2001. This report summarizes laboratory analyses of ground water samples obtained from four monitoring wells installed earlier this year. We understand the study was conducted on behalf of the Board of Selectmen as part of local planning efforts for a proposed residential sub-division in the vicinity of the landfill. In addition, you forwarded to us a copy of an August 27, 2001 letter from the New Hampshire Department of Health and Human Services, Office of Community and Public Health, that reviewed the report cited above.

Members of my staff have consulted with representatives from NHDES concerning landfill and hydrogeologic issues associated with the historic Temple Landfill. In addition, on October 12, 2001, we arranged a visit to the landfill with you, with Mr. Timothy Fiske, representing the Temple Board of Selectmen, and with officials from the Waste Management Division of NHDES. We have since referred our comments (enclosed) and your concerns to NHDES. The State of New Hampshire is responsible for the regulation of this type of solid-waste facility.

If you have any questions or comments, please direct them to Mr. Richard Reed of the NHDES Waste Management Division (603-271-2926). If you have any questions for EPA New England, please contact Chuck Franks of my staff at 617-918-1554. Thank you very much for your concern in this matter.

Sincerely,

Ira W. Leighton
Acting Deputy Regional Administrator

Enclosure

cc: Debra Harding, Town Administrator, Temple, NH
Philip O'Brien, Ph.D., NHDES
Richard Reed, NHDES
Anthony Giunta, NHDES
Temple, NH Board of Selectmen

Help us serve you better. If you need to call us regarding this correspondence in the future, please reference 01-0100715.

Technical Comments Regarding the Stratex LLC Report of May, 2001 to the Temple Board of Selectmen, Temple, New Hampshire:

1. Monitoring Wells B-1, B-2, B-3 and B-4, which were installed to measure the up-gradient and down-gradient quality of ground water, appear to be too shallow to fully characterize aquifer conditions at the site. In most cases, the depth to bedrock is not noted or described, and bedrock water quality (especially hydraulically down-gradient of the site) is not addressed. In addition, the wells intercept only the most shallow, uppermost portion of the overburden aquifer. For example, up-gradient monitoring well B-1 is screened from only 5 to 15 feet below the ground surface (bgs). The depth to the water table on May 2, 2001 was measured at a depth of 8.41 feet bgs, with only 6.59 feet of water in the well. Similarly, monitoring well B-3 (installed to measure down-gradient water quality) held only 6.17 feet of water on the same date.

2. Because ground-water elevations generally reach their lowest levels during the autumn season, it is likely that less water is present in these wells at this time of year, making the task of collecting representative ground water samples much more difficult. During periods of prolonged dryness, some of the monitoring wells run the risk of being dry, making sample collection impossible. Although the ambient ground-water quality standards detected by the wells in the shallow overburden may not be exceeded, the ambient standards at the depth of existing or future drinking water wells are not assessed by these monitoring wells.

3. The wells' shallow construction makes it difficult to fully assess the potential health risks associated with consuming ground water for drinking water from aquifers at the site. For example, the NH Office of Community and Public Health, which reviewed the Stratex study on August 27, 2001, stated: "These samples were collected from wells installed to monitor water quality in the overburden (shallow) aquifer. We cannot determine whether existing drinking water wells have been (or will be) impacted by the groundwater conditions represented by these samples or if new wells developed in the vicinity of the Landfill would be affected."

4. The location and depth of down-gradient monitoring well B-3 may not be optimal. For example, the report notes on page 1 that the "landfill sits on western edge of a large peat deposit (two feet of peat were encountered in the bottom of our boring B-3). The peat deposit appears to overlie a moderately productive sand and gravel aquifer..." Given these geologic conditions, well B-3 (or preferably a deeper well next to it) should have been screened <u>below</u> the peat layer to monitor ground-water quality in the sand and gravel aquifer, through which site leachate (if it exists) would preferentially flow from the waste cell(s) to the northeast. In addition, a fifth monitoring well installed next to the culvert at the intersection of Fish and Vintan Roads would enable future investigators to better assess the potential for leachate migration and ground-water quality closer to potential receptors nearby.

5. The report does not contain a Quality Assurance Project Plan, nor does it describe ground-water sample collection and handling procedures. If low-flow purging procedures were followed at the monitoring wells (especially important in VOC sampling), how were representative field parameters obtained and what criteria were used? The Chain of Custody form also indicates that the temperature of the samples when received by Spectrum Analytical, Inc. was 12 degrees Celsius, which exceeds the maximum recommended shipment temperature of 4 degrees C. In

addition, page three of the report lists lead and cadmium as analytes measured, but these are omitted in the laboratory results.

6. The study does not include information about receptors and potential receptors in the vicinity of the site. Moreover, the report provides no details as to owners' address, well location, depth, drillers logs, water-quality analyses or complaints from property abutters in the area. In addition, the contractor makes no clear recommendations for future sampling of residential supply wells adjacent to the site.

7. The location, composition and configuration of the solid waste cell may be estimated by surficial geophysical survey techniques. Given the site's small size (approximately one acre), this would not be a large undertaking, and would provide valuable information for a more optimized network of monitoring wells. In addition, historical aerial photographs taken during active facility operations could be examined to better understand the location and extent of disposal practices.

8. The report does not contain geologic cross-sections of the landfill and underlying aquifer, nor does it display a map of water-table contours showing ground-water flow directions or up-gradient and down-gradient relationships. In addition, surface-water elevations in adjacent drainage systems (including the large wetland next to the site) were not measured or compared with ground-water elevations in the monitoring wells, so the magnitude of SW/GW interactions (important in understanding pollutant fate and transport) cannot be described.

9. The monitoring wells' elevations were not certified in the report by a registered land surveyor, and their accuracy and precision are unknown.